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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,432	12/28/2001	Myoung Goo Lee	0630-1290P	4397

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EXAMINER

LANDAU, MATTHEW C

ART UNIT PAPER NUMBER

2815

DATE MAILED: 12/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/028,432

Applicant(s)

LEE ET AL.

Examiner

Matthew Landau

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,5-9,11,14-18 and 21-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,7-9,11,15-18,21-23,25 and 26 is/are rejected.
- 7) ☒ Claim(s) 6,14,24 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 04 October 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first active region having a ring configuration must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "the pair of gates" in line 12. There is insufficient antecedent basis for this limitation in the claim.

In regards to claim 22, it is unclear how the first active region can have a ring configuration. The drawing and the specification does not describe this feature. The drawings

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do show, however, the third active region having a ring configuration. For the purpose of this Office Action, it is considered Applicant intends to claim the third active region having a ring configuration.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 8, 9, 11, 15-18, 21-23, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Pan.

In regards to claim 1, Figures 3A and 3B of Pan disclose a multi-finger type ESD protection device comprising: a semiconductor substrate 30 and a plurality of first active regions

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formed on the semiconductor substrate. The first active regions consist of the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> regions (34/33/34) extending in from each end of the region enclosed by embedded wells 38. Figures 3A and 3B of Pan also disclose a plurality of gates 35 formed in each of the first active regions; at least one second active region (region 33 in middle of the region enclosed by embedded wells 38) of a predetermined conductive type (second electricity) formed additionally between the first active regions, wherein the second active region includes an n+ junction connected to Vcc reference voltage (column 4, lines 8-27); and a third active region 37 surrounding the first and second active regions and being of conductivity type different from that of the first active regions (column 3, lines 1-6). Note in this case the second electricity of Pan is a negative electricity (ie, n-type) (column 3, lines 1-6).

In regards to claim 7, Figure 3B of Pan discloses a plurality of source regions 34 each formed between the pair of gates 35 in each of the first active regions.

In regards to claim 8, Figure 3B of Pan discloses the first and second active regions and the gates extend substantially parallel to each other.

In regards to claim 9, Figure 3B of Pan discloses the first and second active regions and the gates 35 have a substantially same shape.

In regards to claim 11, Figures 3A and 3B of Pan disclose a multi-finger type ESD protection device comprising: a semiconductor substrate 30 and a plurality of first active regions formed separately on the semiconductor substrate. The first active regions consist of the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> regions (34/33/34) extending in from each end of the region enclosed by embedded wells 38. Figures 3A and 3B of Pan also disclose a plurality of gates 35 formed in each of the first active regions and at least one predetermined conductive type (second electricity) second active

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region (region 33 in middle of the region enclosed by embedded wells 38) formed between two of the first active regions, wherein the predetermined conductive type second active region is an  $n^+$  junction connected to  $V_{cc}$  reference voltage (column 4, lines 8-27). Note in this case the second electricity of Pan is a negative electricity (ie, n-type) (column 3, lines 1-6).

In regards to claim 15, Figure 3B of Pan discloses source regions 34 each formed between two gates 35 in each of the first active regions.

In regards to claim 16, Figure 3B of Pan discloses the first and second active regions and the gates 35 extend substantially parallel to each other and have a substantially same shape.

In regards to claim 17, Figure 3B of Pan discloses a third active region 37 surrounding completely the first and second active regions.

In regards to claim 18, Figures 3A and 3B of Pan disclose a multi-finger type ESD protection device comprising: a semiconductor substrate 30 and a plurality of first active regions formed separately on the semiconductor substrate. The first active regions consist of the 1<sup>st</sup> and 2<sup>nd</sup> regions (34/33) extending in from each end of the region enclosed by embedded wells 38. Figures 3A and 3B of Pan also disclose a plurality of gates 35 formed in each of the first active regions; at least one predetermined conductive type (second electricity) second active region (region 34 towards the middle of the region enclosed by embedded wells 38) formed between two of the first active regions, wherein the predetermined conductive type second active region is an  $p^+$  connected to a ground  $V_{ss}$  (column 4, lines 8-27); and a third active region 37 surrounding the first and second active regions and being of conductivity type different from that of the first active regions (column 3, lines 1-6). Note in this case the second electricity of Pan is a positive electricity (ie, p-type) (column 3, lines 1-6).

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In regards to claim 21, Figure 3B of Pan discloses the third active region 37 surrounds completely the first and second active regions.

In regards to claim 22, as best the examiner can ascertain the claimed invention, Figure 3B of Pan the third active region 37 has a ring configuration.

In regards to claim 23, Pan discloses the first active region is of p conductive type (positive electricity) (column 3, lines 1-6).

In regards to claim 25, Figure 3B of Pan discloses source regions 34 each formed between the gates 35 in each of the first active regions.

In regards to claim 26, Figure 3B of Pan discloses the first and second active regions and the gates 35 extend substantially parallel to each other and have a substantially same shape.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pan in view of Lien et al.

The difference between Pan and the claimed invention is a plurality of drain regions formed in each of the first active regions. Figure 3A of Lien et al. discloses a plurality of drain regions (labeled "D") in an active region. In view of such teaching, it would have been obvious

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to the ordinary artisan at the time the invention was made to modify the invention of Pan by increasing the number of drain regions in the first active regions. The ordinary artisan would have been motivated to modify Pan in the manner described above for the purpose of increasing the capacity of the ESD protection device.

#### *Allowable Subject Matter*

Claims 6, 14, 24, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Response to Arguments*

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

#### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



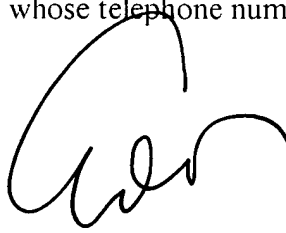
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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (703) 305-4396.

The examiner can normally be reached from 8:00 AM-4: 30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Matthew C. Landau  
SUPERVISOR  
TECHNICAL

Matthew C. Landau

Examiner

December 17, 2002